

The writer finds no published record in regard to long-continued vitality of the spores of *Marsilea* which equals the case described above, though it is more than probable that a period of eighteen years does not exhaust the possibilities in the matter. Failure in the experiments with spores of greater age is inconclusive as is shown by numerous failures with material of a much less age. It is evident that much depends upon the collection of the sporocarps at just the right stage of maturity.

SHORTER NOTES

A NEW HEMIZONIA FROM CALIFORNIA. — *Hemizonia grandiflora*. Annual: stems erect, branching, 1–3.5 dm. high, glandular-villous and somewhat heavy-scented: leaves all sessile, the lowest opposite, linear-lanceolate, acute, 8–15 cm. long, serrulate and scabrous on the margins, sparsely lanate with very long appressed hairs, those subtending the main branches similar but alternate, those of the floral branches reduced, 1–3 cm. long, obtuse, or the longer ones acutish, glandular-pubescent: heads very showy, 2.5–3 cm. broad: involucre bracts broadly lanceolate, subacute, 6–7 mm. long: rays 8–10, 10–12 mm. long, 7–9 mm. wide, 3-lobed to near the middle, the lobes obtuse, the middle one about half as broad as the outer ones and somewhat shorter, pure white or the midveins of the lobes pinkish beneath; disk corollas glabrous without, their lobes ciliate within toward the apices: outer bracts of the receptacle united into a cup: achenes black, very shortly stipitate, obovate, smooth, rounded on the back and faintly keeled, 2.75 mm. long, 1.5–1.75 mm. broad.

This species is closely related to *H. luzulaefolia* DC., but differs from that species in having much larger heads, involucre bracts and achenes, and greener foliage. The conspicuous lanate leaves are confined to the base in *H. luzulaefolia*, while in this species they extend up on the stem and subtend the main branches. Finally, *H. luzulaefolia* is a late summer and autumnal species, while this is in full bloom in the middle of May and will have fruited and gone before that species begins to flower.

Crystal Springs Lake, San Mateo Co., California. Growing on hillsides which are composed of serpentine rocks. Collected by the writer (no. 2446) 11 May, 1902. LEROY ABRAMS.

AN UNDESCRIBED SPECIES OF HYDROPHYLLUM.—Early in May of 1899 Dr. MacDougal collected a number of plants in northern Minnesota and sent them to the New York Botanical Garden. A *Hydrophyllum* of this collection bloomed in June of this year for the first time, alongside of plants of *Hydrophyllum Virginicum*, obtained in 1896 from Mr. Harrison, of Lebanon Springs, N. Y.

The Minnesota plant much resembles *H. Virginicum* in habit and foliage; but differs from it strikingly in floral characters. At the time of flowering the calyx-segments are erect against the corolla, while in *Virginicum* they are widely spreading, and in the new species they remain nearly erect in fruit; in both species they are narrowly linear and about equally ciliate. In *H. Virginicum*, the corolla-segments are erect, while in the Minnesota plant their tips are spreading; the color of the corolla is a marked purple in the new species, while in the plants of *Virginicum* studied, the corolla is pale, nearly white, although I think, from observations made on *Virginicum* in the Alleghanies, that the color in that species varies considerably. In *H. Virginicum* the petioles are slightly ciliate, while in the Minnesota plant the upper ones are strikingly so.

The foliage of the two species is however so similar that I have not yet been able to sort them satisfactorily in the herbarium, except by the ciliate petioles, which I am not sure is a constant character. I call the new species ***Hydrophyllum patens***.

N. L. BRITTON.

NOTES ON VERBENA.—I. ***Verbena racemosa***. Annual (?), hirsute. Stem branched at the base, the several branches erect and ascending, 10–20 cm. tall: leaves firm; blades oval or ovate in outline, about 2 cm. long, 1.5 cm. wide, deeply twice 3-parted into linear segments, the lower ones petioled, the upper nearly sessile: spikes terminating the branches, short-peduncled, cylindric, 2–4 cm. long at maturity, rather dense: bracts 4–7 mm. long, lanceolate: calyx rough-hairy, surpassing the bracts; lobes linear-subulate, shorter than the tube: corolla light blue or nearly white, 1 cm. long, persistent; limb about 4 mm. broad: fruit 3 mm. long.

In low places on sandy soil, from the vicinity of El Paso to Martin County, Texas. April to June. *Verbena racemosa* is

related to *V. bipinnatifida* with which it has heretofore been associated. It differs from the latter species in the narrow leaf-segments and the smaller, pale and persistent corollas. It hybridizes with *Verbena Wrightii*.

II. *Verbena brevibracteata* (A. Gray). [*V. bracteosa* var. *brevibracteata* A. Gray, Syn. Fl. N. Am. 2: 336. 1878.] This plant is so different from *Verbena bracteosa* that I am surprised it was associated with that species as a variety. It has an erect habit and grows in sandy woods or in fields. The flowers are in dense spikes and the corolla is red and twice as large as that of *V. bracteosa*.

HENRY EGGERT.

EAST ST. LOUIS, ILLINOIS.

LUNULARIA CRUCIATA "IN FRUIT."—*Lunularia cruciata*, heretofore recorded as "gemmiferous but always sterile in America," has at last fruited here. In a large lath-house belonging to the California Nursery Company, in Niles, California, this hepatic is very abundant, overrunning the half-sunk pots and the ground between them.

Early in April on the drier parts of this shady earthen floor, the *Lunularia* was found to bear many of the small, white tuft-like sheaths that cover the young archeogonial receptacles. Two weeks later quantities of the androecia were observed on the same plants but not in any case on the very same division of the thallus. By the 9th of May there were eleven perfect capsule-bearing receptacles and many that were just beginning to push through the scales of the sheaths, the silvery, pellucid peduncles shining through the fimbriate edges. Later, many of these perfected, but more just withered as the air became drier and warmer.

This lath-house is for the protection of potted azaleas, rhododendrons, araucarias, acacias, etc., is kept damp, and is of course more open to wind and rain than a glass house. Possibly these conditions approach those of the European habitats of this liverwort.

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NILES, CALIFORNIA.